What is claimed is:

CLAIMS:

1. A vibratory separator for separating components of material introduced thereto, the vibratory separator comprising

a basket

a collection receptacle beneath the basket,

a deck on the basket for mounting a screen assembly thereon, the deck having a plurality of deck pins projecting upwardly therefrom,

a screen assembly on the deck, the screen assembly comprising screening material,

the screening material having a plurality of openings therethrough suitable for the flow of fluid therethrough, the fluid from the material introduced into the basket,

the screening material having a plurality of spaced apart screen holes therethrough, each screen hole having therein part of one of the deck pins,

vibratory apparatus connected to the vibratory separator for vibrating the screen assembly,

holding apparatus for holding the screen assembly on the deck with a part of a deck pin in each screen hole.

2. The vibratory separator of claim 1 wherein the screening material comprises a plurality of layers of screen mesh.

3. The vibratory separator of claim 1 wherein the vibratory separator is a shale shaker and the material includes drilling fluid with drilled cuttings entrained therein.

4. The vibratory separator of claim 1 further comprising

two side ledges on spaced-apart sides of the basket, the side ledges positioned for supporting spaced-apart sides of the screen assembly,

each side ledge having an upper surface inclined downwardly from a basket side toward an interior of the basket,

each deck pin projecting upwardly from one of the side ledges, and

two spaced-apart edges of the screen assembly each having screen holes of the pluralilty of holes therethrough, each of said edges of the screen assembly resting on one of said upper surfaces.

5. The vibratory separator of claim 1 wherein the holding apparatus includes two spaced-apart rails, each rail positioned movably above one of the two side ledges, each rail selectively movable downwardly to abut an edge of the screen assembly and to push said edge against the upper surface of said side ledge thereby bending said screen assembly so that said edges assume an inclination corresponding to the inclined upper surface of said corresponding side ledge, and the vibratory separator further comprising

selectively movable apparatus for moving the rails downwardly against said edges.

6. The vibratory separator of claim 5 wherein the deck includes curved support for the screen assembly and the rails hold edges of the screen assembly against the side ledges so that the screen assembly is held in a crowned shape on said curved support.

7. The vibratory separator of claim 5 further comprising

each rail having a plurality of rail holes therein, each rail hole located and configured for receiving a portion of a deck pin when the rail abuts the screen assembly, said deck pin also passing through an edge of the screen assembly.

8. The vibratory separator of claim 1 further comprising

the holding apparatus including two spaced-apart rails, one rail on each of two spaced-apart sides of the basket, each rail movable downwardly to abut an edge of the screen assembly, and

movement apparatus connected to the basket for selectively moving the rails down to abut the screen assembly.

9. The vibratory separator of claim 8 further comprising power apparatus connected to the movement apparatus for powering the movement apparatus for powered movement of the rails.

10. The vibratory separator of claim 9 further comprising the power apparatus including a plurality of selectively movable piston apparatuses above each rail, each selectively movable piston apparatus including a movable piston with a lower end releasably connected to a corresponding rail.

11. The vibratory separator of claim 9 further comprising manually operable apparatus for selectively moving the rails.

12. The vibratory separator of claim 9 wherein the power apparatus is fluid powered by fluid under pressure.

13. The vibratory separator of claim 12 wherein the fluid under pressure is from the group consisting of gas and hydraulic fluid.

14. The vibratory separator of claim 1 wherein the deck pins are inclined toward an interior of the basket and the holding apparatus includes two spaced-apart side members, each side member pushing down on an edge of the screen assembly thereby tensioning the screening material.

15. The vibratory separator of claim 1 wherein the holding apparatus includes a bladder system with inflatable bladder apparatus for pushing down on spaced-apart edges of the screen assembly to hold the screen assembly on the deck.

16. The vibratory separator of claim 15 wherein the bladder apparatus directly contacts a top surface of the screening material providing a seal between an interface of a lower surface of the bladder apparatus and the top surface of the screening material.

17. The vibratory separator of claim 15 wherein the screen assembly has two edge hooks, one edge hook at an outer part of each spaced-apart edge of the screen assembly held down by the holding apparatus, each edge hook releasably held within the basket.

18. The vibratory separator of claim 15 wherein the two spaced-apart rails seal against a top surface of the screening material.

19. A holding system for holding a screen assembly on a deck of a vibratory separator, the vibratory separator having two spaced-apart sides between which the screen assembly is held, the deck including two side supports for supporting two spaced-apart sides of the screen assembly, each side support having an upper surface inclined downwardly from its respective vibratory separator side toward an interior of the vibratory separator, the holding system comprising

two spaced-apart rails, each rail located on a side of the vibratory separator above an upper inclined surface of a corresponding side support,

each rail selectively movable downwardly to hold an edge of the screen assembly against an upper inclined surface of a side support thereby inclining said edge to assume an inclination corresponding to the upper inclined surface.

20. The holding apparatus of claim 19 wherein said rails have holes and each side support has a plulrality of pins spaced-apart thereon and projecting upwardly therefrom from said upper surface, said pins for projection through said screen assembly and into said holes of said rails.

21. The holding apparatus of claim 19 wherein the rails hold the screen assembly in sealing contact with the deck.

22. The holding apparatus of claim 19 wherein the screen assembly comprises screening material and downward force of the rails tensions the screening material of the screen assembly.

23. A support for a screen assembly in a vibratory separator, the support comprising

a deck for supporting a screen assembly, the screen assembly restable on the deck,

the deck having two spaced-apart side supports, each of said side supports having an upper portion with an inclined surface, each of said inclined surfaces inclined inwardly and downwardly from an outer part of said deck toward an inner part thereof,

each of said upper portions with an inclined surface locatable beneath an outer edge of the screen assembly.

24. The support of claim 23 wherein each outer edge of said screen assembly has at least one screen hole for receiving a portion of a pin and the support further comprising

each of the two spaced-apart side supports having at least one pin projecting upwardly therefrom, a portion of said at least one pin positionable in said at least one screen hole.

25. A screen assembly for a vibratory separator, the screen assembly comprising

screening material having two spaced-apart outer edges,

a plurality of spaced-apart holes in each of said outer edges,

each of said holes located for receiving a portion of a pin projecting therethrough.

26. The screen assembly of claim 25 wherein said pin projects upwardly from a support beneath the screen assembly.

27. A method for holding a screen assembly in a vibratory separator, the method comprising

installing a screen assembly on a deck of a vibratory separator, the vibratory separator having two spaced-apart sides between which a screen assembly is held, the deck including two side supports for supporting two spaced-apart sides of a screen assembly, each side support having an upper surface inclined downwardly from its respective vibratory separator side toward an interior of the vibratory separator, and

holding the screen assembly in place with a holding apparatus, the holding apparatus comprising a holding system for holding the screen assembly on the deck of a vibratory separator, the holding system comprising two spaced-apart movable members, each located on a side of the vibratory separator above an upper inclined surface of a side support, and each movable member selectively movable to hold an edge of the screen assembly against an upper inclined surface of a side support thereby inclining said edge to assume an inclination corresponding to the upper inclined surface.

28. The method of claim 27 wherein the movable members are from the group consisting of inflatable bladders and side rails.

29. The method of claim 27 wherein the movable members seal against a top surface of the screen assembly.

30. The method of claim 27 wherein the screen assembly has screening material thereon and the movable members bend the screen assembly thereby tensioning the screening material.

31. A method for processing material with a vibratory separator, the method comprising

introducing material to be processed to a vibratory separator, the vibratory separator comprising a basket, a collection receptacle beneath the basket, a deck on the basket for mounting a screen assembly thereon, the deck having at least one deck pin projecting upwardly therefrom, and the screen assembly comprising screening material, the screening material having a plurality of openings therethrough suitable for the flow of fluid therethrough, the fluid from the material introduced into the basket, the screening material having at least one screen hole therethrough, said screen hole for receiving part of one of the at least one deck pin, vibratory apparatus connected to the vibratory separator for vibrating the screen assembly, holding apparatus for holding the screen assembly on the deck with a part of said at least one deck pin in said screen hole, and

separating components of the material with the screen assembly.